

**142F  
144F GASOLINE ENGINE**

**SM-142F-01B**

# **INSTRUCTION MANUAL**

Thank you for purchasing our engine.

This manual covers the operation and maintenance of your engine.

All information in this publication is based on the latest product information available at the time of printing.

Linyi Huatian Construction Machinery Ltd reserves the right to make changes at any time without notice and without incurring any obligation.

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This manual should be considered a permanent part of the engine and should remain with it if it is resold.

Pay special attention to statements preceded by the following words:

**WARNING!** Indicates a strong possibility of severe personal injury or death if instructions are not followed.

**CAUTION!** Indicates a possibility of personal injury or equipment damage if instructions are not followed.

**NOTICE!** Indicates that equipment or property damage can result if instructions are not followed.

**WARNING!**

- **This engine is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's manual before operating the engine. Failure**

- to do so could result in personal injury or equipment damage.
- Muffler's exhaust outlet can't point to the operator.

## **I . FOREWORD**

This engine is single-cylinder, four-stroke, air-cooled, small-size and light-weighted gasoline engine, its construction is simple , operation and maintenance is easy.

The engine can be used as the power for water-pump, electrical machine, mini-cultivator etc.

## **II.SAFETY INSTRUCTIONS**

**WARNING!** To ensure safe operation-

This engine is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's manual before operating the engine. Failure to do so could result in personal injury or equipment damage.

- Don't start the engine without mounting it on an equipment. It is designed to give safe and

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- Don't smoke and allow flames or sparks where the engine is refueled or where gasoline is stored.
- Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gases. Never run the engine in a closed garage or confined area.
- Don't place any thing on the engine, as it may create a fire hazard.
- This type engine, a spark arrester is available as an optional part. It is illegal in some areas to operate an engine without a spark arrester. Check local laws and regulations before operations.
- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. To avoid severe burns or fire hazards, let the engine cool before transporting it or storing it indoors.

#### **SAFETY INSTRUCTION LOCATION**

**This instruction warns you of potential hazards that can cause serious injury. Read it carefully.**

### III. TECHNICAL DATA

Model	142F	144F
Type	4-stroke, over head valve, 1 cylinder	
Displacement	49cm <sup>3</sup>	53.2 cm <sup>3</sup>
Bore × Stroke	41.8 × 35.8mm	43.5 × 35.8mm
Max .output	1.2kW /6800rpm	1.5kW /6800rpm
Max. torque	2.0Nm /4500rpm	2.5Nm /4500rpm
Fuel consumption	480g/kWh	
Cooling system	Forced air	
Ignition system	Transistor magneto	
Length × Width × Height	274 × 225 × 355mm	
Net weight	5.5 kg	
PTO shaft rotation	Counter clockwise	

## IV. PREPARATION

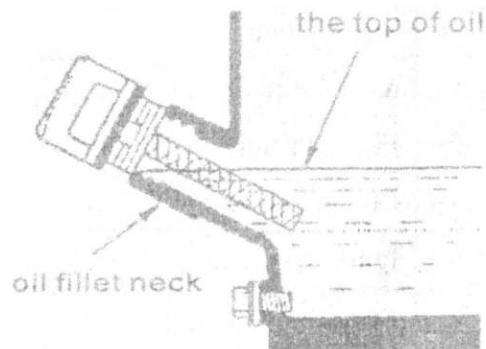
### 1. Engine oil level

#### CAUTION!

- Running the engine with insufficient oil can cause serious engine damage.
- Be sure to check the engine on a level surface with the engine stopped.
- a. place the engine with the fuel tank side downward and horizontally on a level surface.
- b. Remove the oil filler cap and check the oil level: it should reach the top of the oil filler neck.
- c. If the level is low, fill to the top of the oil filler neck with the recommended oil.

Every 10 hours, check the engine oil level and replenish oil up to the top of the filler neck if the engine is operated for more than 10 hours continuously.

Use an high detergent, premium quality motor oil



certified to meet or exceed U. S. automobile manufacture's requirement for service classification SG. SF. SAE 10W-30 is recommended for general, all temperature use .

**CAUTION!**

Using nondetergent oil or 2-stroke engine oil could shorten the engine's life.

2. Air cleaner

**CAUTION!**

Never run the engine without the air cleaner. Rapid engine wear will result.

Check cleaner for dirt or obstruction of element.

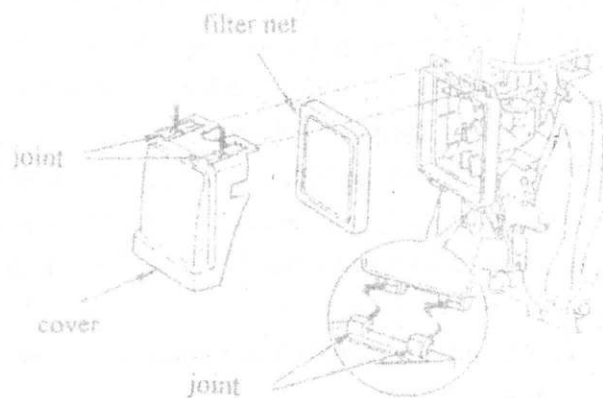
3. Fuel

Use automotive gasoline (unleaded or lowleaded is preferred to minimize combustion chamber deposits).

Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt , dust or water in the fuel tank .

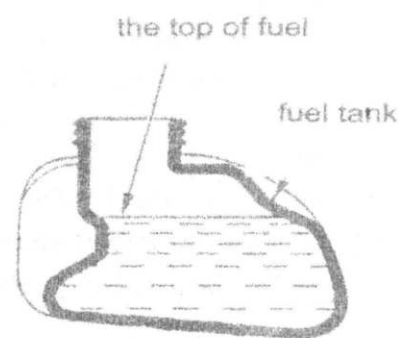
**WARNING!**

- Gasoline is extremely flammable and is explosive under certain conditions.
- Refuel in a well-ventilated area with the engine stopped. Don't smoke or allow flames or



sparks in the area where the engine is refueled or where the engine is stored.

- Don't overfill the tank (there should be no fuel in the filler neck ). After refueling , make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.



**KEEP OUT OF REACH OF CHILDREN.**

Fuel tank capacity: 1.2 l (0.32 US gal, 0.26 imp gal)

**GASOLINE CONTAINING ALCOHOL**

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is high. There are two types of "gasohol", one containing methanol, and the other containing ethanol. Don't use gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol. Never use gasoline containing more than 5% methanol, even if it has cosolvents

and corrosion inhibitors.

**CAUTION!**

- Fuel system damage or engine performance problems resulting from the use of fuels that contain alcohol is not covered under the warranty . we can't endorse the use of fuels containing methanol since evidence of their suitability is as yet incomplete.
- Before buying fuel from an unfamiliar station, try to find out if the fuel contains alcohol, if it does, confirm the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

4. Retightening bolts and nuts

Check for loose bolts and nuts. Tighten the bolts and nuts properly and securely, if necessary .

## **V.STARTING THE ENGINE**

1. Turn the engine switch to ON position (on the equipment side).
2. Move the choke lever to the "OFF" position .

**CAUTION!**

**Don't use the choke if the engine is warm or the air temperature is high .**

3. Press the priming pump several times until a fuel flow in the fuel return tube is visually noticed.
4. Pull the starter grip lightly until resistance is felt, then pull briskly.

**CAUTION!**

**Don't allow the starter grip briskly. If not pulled briskly, sparks may fail to jump across the spark plug electrodes, resulting in failure to start the engine.**

- **High altitude operation**

At high altitude, the standard carburetor air-fuel mixture will be excessively rich. Performance will decrease, and fuel consumption will increase.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor, and readjusting the idle needle screw and the idle adjust screw. If you always operate the engine at altitudes higher than 1,860m (6000feet )above sea level, have your authorized dealer perform these carburetor modifications .

Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 305m (1,000 feet ) increase in altitude. The affect of altitude on horsepower will be greater than this if no carburetor modification is made.

**CAUTION!**

**Operation of the engine at an altitude lower than the carburetor is jetting for may result in**

reduced performance, overheating, and serious engine damage cause by an excessively lean air/fuel mixture.

## **VI. OPERATION**

1. Gradually move the choke lever to the "ON" position. Warm up the engine until it run smoothly.
2. Position the throttle control lever for the desired engine speed (on the equipment side).

## **VII. STOPPING THE ENGINE**

To stop the engine in an emergency, turn the engine switch to the OFF position (on the equipment side). Under normal conditions, use the following procedure:

1. Position the throttle lever fully to LOW (on the equipment side).
2. turn the engine switch to the OFF position (on the equipment side).

## **VIII. MAINTENANCE**

Periodic inspection and adjustment of the engine is essential if high lever performance is to be

maintained. Regular maintenance will also ensure a long service life. The required service intervals and the kind of maintenance to be performed are described on the table below.

#### Maintenance Schedule

	Each use	First month or operating 10 hours	Every 3 month or operating 25 hours	Every 5 month or operating 50 hours	Every year or operating 100 hours
Engine oil	Check	Change		Change	
Air cleaner	Check		Clean *		
All bolts and nuts	Re-tighten if necessary				
Engine cooling fins				Check	
Spark plug				Clean-adjust	
Spark arrester					Clean
Valve clearance	Every 2 year or 200 hours#				
Clutch shoes				Check#	
Fuel tank strainer					Check
Fuel tank					Clean
Fuel line	Every 2 year#				

\*. Service more frequently used in dirty area.

#. these items should be serviced by an authorized dealer, unless the owner has the proper tools and is mechanically proficient.

#### WARNING!

- Shut off the engine before performance.
- To prevent accidental start-up, turn OFF the engine switch and disconnect the spark plug cap.
- The engine should be serviced by an authorized dealer unless the owner has proper tools and service data and feels he is mechanically qualified.

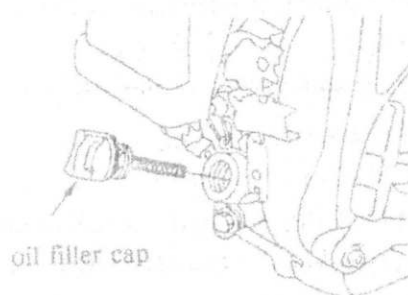
**CAUTION!**

Use only genuine parts or their equipment. The use of replacement parts which are not equivalent quality may damage the engine.

**1. Oil change**

Drain the oil while the engine is still warm to assure rapid and complete drain .

- a. Check the fuel filler cap is tightened.
- b. Remove the oil filler cap and drain the oil into the oil container by inclining the engine toward the oil filler neck.
- c. Refill with the recommended oil and check the oil level.



**Engine oil capacity: 0.251 (0.275 US qt , 0.225 Imp qt)**

**Wash your hands with soap and water after handling used oil.**

**CAUTION!**

**please dispose of used motor oil in a manner that is compatible with the environment, we suggest you take it in a sealed container to your local service station for reclamation. Don't throw it in the trash or pour it on the ground.**

**2. Air cleaner service**

**A dirty Air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the engine in extremely dusty areas.**

**WARNING!**

**Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.**

**CAUTION!**

**Never run the engine without the air cleaner. Rapid engine wear will result.**

- a. Move the choke lever to the CLOSED ( upward ) position.**
- b. Remove the air cleaner cover by unhooking the upper tab on the top of the air cleaner cover**

and its two lower tabs.

- c. Wash the element in a nonflammable or high flash point solvent and dry it thoroughly.
- d. Soak the element in clean engine oil and squeeze out the excess oil.
- e. Reinstall the air cleaner element.
- f. Reinstall the air cleaner cover by inserting the lower tabs, then insert the upper tab.

### 3. Spark plug service

**Recommended spark plug: TORCH A5RTC ( or try to use generic A7TC )**

#### **CAUTION!**

**Never use a spark plug of incorrect heat range.**

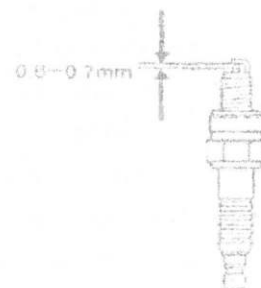
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

- a. Remove the spark plug cap and use the proper size spark plug wrench to remove the spark plug.

#### **WARNING!**

**If the engine has been running, the muffler will be very hot, be careful not to touch the muffler.**

- b. Visually inspect the spark plug. Discard the spark plug if there is apparent wear, or if the insulator is cracked or chipped. Clean



the spark plug with a wire brush if it is to be reused.

- c. Measure the spark plug gap with a feeler gauge. Correct as necessary by bending the side electrode. The gap should be :0.60~0.70mm (0.024~0.028in )
- d. Check the spark plug washer is in good condition and thread the spark plug in by hand to prevent cross-threading.
- e. After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

**CAUTION!**

When installing a new spark plug, tighten with 1/2 turn after the spark plug seats to compress the washer. When reinstalling a used spark plug, tighten 1/8~1/4 turn after the spark plug seats to compress the washer.

**CAUTION!**

The spark plug must be securely tightened. An improperly tighten spark plug can become very hot and may be damage the engine.

**4. Fuel filler service**

**WARNING!**

Gasoline is extremely flammable and is explosive under certain conditions. Don't smoke or allow flames or sparks in the area.

- a. Check the engine oil filler cap is tightened securely.

- b. Remove the fuel filler cap and drain the fuel into the container by inclining the engine toward the fuel filler neck.
- c. Pull out the fuel filler with the mechanic's wire from the fuel filler neck gently.
- d. Check the fuel filler of its dirt. If the fuel filler is dirty, wash it gently with nonflammable or high flash point solvent. If the fuel filler is excessively dirty, replace it.
- e. Return the fuel filler into the fuel tank and the fuel filler cap securely.

#### **5 . Fuel tank cleaning**

##### **WARNING!**

**Gasoline is extremely flammable and is explosive under certain conditions. Don't smoke or allow flames or sparks in the area.**

- a. Check the engine oil filler cap is tightened securely.
- b. Remove the fuel filler cap and drain the fuel into the container by inclining the engine toward the fuel filler neck.
- c. Pull out the fuel filler with the mechanic's wire from the fuel filler neck gently.
- d. Remove water and dirt stood in the fuel tank by rinsing the inside of the fuel tank with nonflammable or high flash point solvent.
- e. Return the fuel filler into the fuel tank and the fuel filler cap securely.

#### **6. Cooling fin service**

Inspect the cooling fin visually through the cover. If there are dry grass, leaves and mud clogged, contact the power equipment dealer for cleaning it.

## **IX. TRANSPORTING AND STORAGE**

### **WARNING!**

**When transporting the engine, tighten the fuel filler cap to prevent fuel spillage. Fuel vapor or spilling fuel may ignite.**

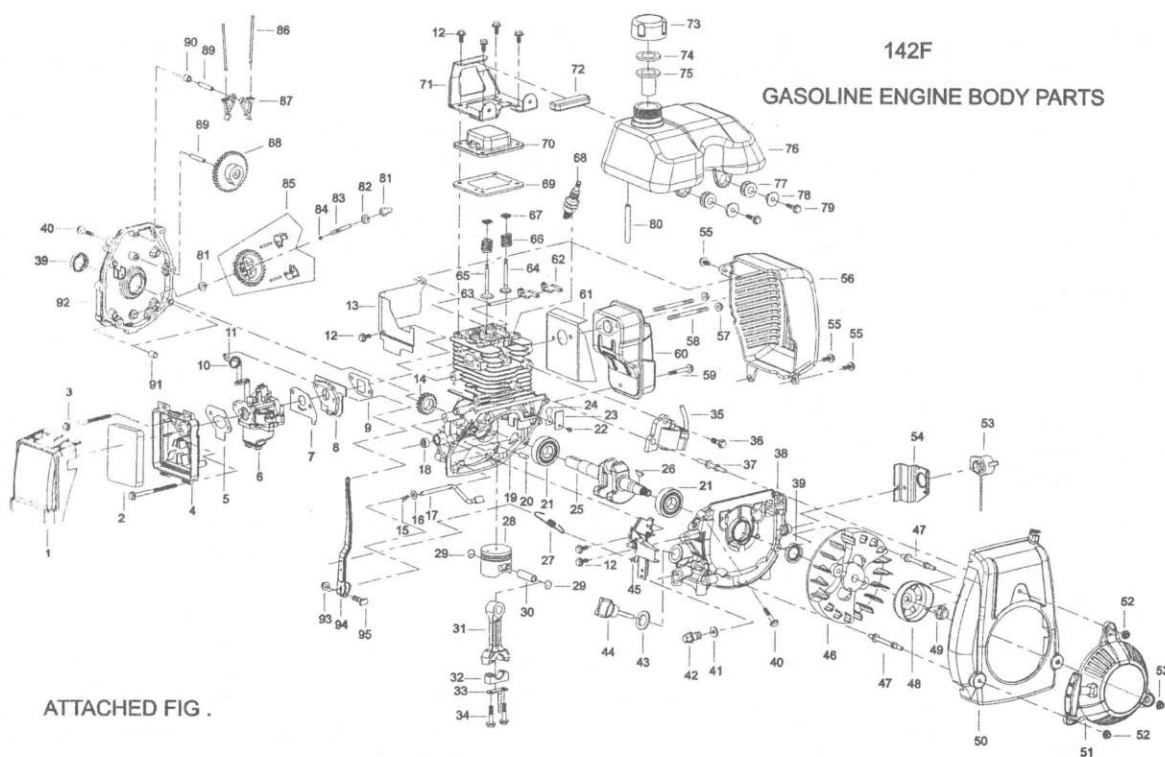
Before storing the unit for an extended period:

- a. Be sure the storage area is free of excessive humidity and dust.
- b. Drain the fuel...

### **WARNING!**

**Gasoline is extremely flammable and is explosive under certain conditions. Don't smoke or allow flames or sparks in the area.**

- a. Check the engine oil filler cap is tightened securely.
- b. Remove the fuel filler cap and drain the fuel into the container by inclining the engine toward the fuel filler neck.
- c. Press the priming pump several time until all fuel left in the fuel return tube is returned into the fuel tank.
- d. Tilt the engine toward the fuel filler neck again to drain the fuel left in the fuel tank into the container.
- e. Tighten the fuel filler cap securely after draining the fuel completely.



Ser.NO.	Part NO.	Part Name	Qty.	Ser.NO.	Part NO.	Part Name	Qty.
1	142F.1-1	Cleaner Outside Cover	1	26	GB/T1099	KEY 3513	1
2	142F.1-2	Filter Net	1	27	142F.6-4	Spring	1
3	GB5789	SCREW M575	2	28-1	142F.13-1	Piston	
4	142F.1.1	Cleaner Inside Cover	1	28-2	142F.13-2	NO1.Piston ring	1
5	142F-3	Gasket	1	28-3	142F.13-3	NO2.Piston ring	1
6	142F-2	Carburetor	1	28-4	142F.13-4, 5	Oil-Ring	1
7	142F-4	Gasket	1	29	1E40F-03.02.01	Ring	2
8	142F-5	Admitting Pipe	1	30	142F.13-6	Piston Pin	1
9	142F-6	Gasket	1	31	142F.13.1-1	Link Lever	1
10	142F.6-1	Spring	1	32	142F.13.1-2	Link Lever Cover	1
11	142F.6-2	Pole	1	33	142F.13.1-3	Shift Fork	1
12	GB5789	SCREW M512	7	34	GB5789	SCREW M525	2
13	142F-16	Guide Cover	1	35	142F.11-1	Ignition Stator	1
14	142F.14-2	Gear Wheel	1	36	GB5789	SCREW M520	1
15	142F.9-12	Pin	1	37	142F-15	Screw2	1
16	GB97.1	WASHER 5	1	38	142F-22	Case	1
17	142F.9-13	Pole	1	39	142F.12	Oil-Seal	2
18	1E58FL.12.1-5	Oil-Seal	2	40	GB5789	SCREW M525	1
19	142F.9.3	Cylinder	1	41	142F-12	Screw Gasket	1
20	GB/T119.1	Pin 612	2	42	142F-11	Screw	1
21	GB/T276	Bearing 6203/P5	2	43	142F-10	Seal	1
22	GB/T818	SCREW M35	1	44	142F-9	Oil-Scale	1
23	142F.9-10	Seesaw	1	45	142F.8.1	Throttle Lever Ass'y	1
24	142F.9-11	Reed Valve	1	46	142F.11-2	Magneto Rotor Comp.	1
25	142F.14-1	Crank Case	1	47	142F-14	Screw1	1

Ser.NO.	Part NO.	Part Name	Qty.	Ser.NO.	Part NO.	Part Name	Qty.
48	142F-21	Start Reel	1	73	142F.3.1	Fuel Tank Lid	1
49	GB/T6177.2	NUT M101.25	1	74	BG305.10-2	Gasket	1
50	142F.10	Magneto Cover	1	75	BG305.10.1	Cleaner	1
51	142F.8	Starter	1	76	142F.3-1	Fuel Tank	1
52	GB/T6177.1	NUT M5	3	77	142F.3-2	Fuel Tank Bush	2
53	142F.7.1	Stop Button	1	78	142F.3-3	Fuel Tank Sleeve	2
54	142F.7.2	Fixing Board	1	79	GB5789	SCREW M620	2
55	GB5789	SCREW M516	3	80	142F.3-4	Vitta	1
56	142F.4	Muffler Cover	1	81	142F.15-4	Sleeve	1
57	GB/T6187.1	NUT M5	3	82	142F.15-2	Gear Washer	2
58	142F-7	Double-Edged Bolt	2	83	142F.15-3	Gear Pin	1
59	GB5789	SCREW M535	1	84	GB/T 895.2	Gasket 4	1
60	142F.5	Muffler	1	85	142F.15.1	Timing Gear	1
61	142F-8	Muffler Baffle	1	86	142F.9-3	Valve Pole	2
62	142F.9.1	Rocker	2	87	142F.9-4	Valve Pillar	2
63	142F.9-9	Rocker-shaft	1	88	142F.9.2	Cam Wheel	1
64	142F.9-7	Exhaust Valve	1	89	142F.9-6	Long Pin	2
65	142F.9-8	Incoming Valve	1	90	142F.9-5	Sleeve	1
66	142F.9-1	Valve Spring	2	91	1E40F-02.00.35	Pin	2
67	142F.9-2	Valve Spring Seat	2	92	142F.15-1	Slide Cover	1
68	TORCH A5RTC	Spark Plug	1	93	GB/T6177.1	NUT M6	1
69	142F-20	Gasket	1	94	142F.6-3	Timing Pole	1
70	142F-17	Cover	1	95	142F.6-5	Lock Bolt	1
71	142F-18	Fuel Tank Support	1				
72	142F-19	Fuel Tank Gasket	1				